

62

Notice of Allowability

Application No.

09/987,010

Examiner

Tuan N. Nguyen

Applicant(s)

INOUE ET AL.

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/23/2005.
2. ☒ The allowed claim(s) is/are 1-7.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>6/17/2005</u> . |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>11/13/2001</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Response to Amendment

1. In responding to applicant's Appeal brief filed 05/23/2005, and examiner's telephone interview on 06/15/2005 - claims 2-6 have been amended, claim 7 has been added.

Drawings

2. Proposed change to the drawing submitted on 02/25/2003 was accepted and mailed on 04/09/2003. New corrected drawing is now required, because the case has been allowed.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below, to the amended claims 2-6. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Deborah S. Gladstein (Attorney for Applicant, Reg. No. 43636) on 06/15/2005.

Claim2:

2. (currently amended) A semiconductor laser device comprising a semiconductor laser chip mounted on a base portion by using an electrically conductive die-bond paste including metal filler, wherein
thermal resistance of the semiconductor laser device is 90°C/W or lower, and
the conductive die-bond paste interposed between a die-bond surface of the semiconductor laser chip and the base portion is 5 μm or lower thick.

Claim 3:

3. (currently amended) ~~The semiconductor laser device according to Claim 2A~~
semiconductor laser device comprising a semiconductor laser chip mounted on a base portion by
using an electrically conductive die-bond paste including metal filler, wherein
thermal resistance of the semiconductor laser device is 90°C/W or lower, and wherein
creep-up height of the conductive die-bond paste at a side face of the semiconductor laser
chip from a die-bond surface of the semiconductor laser chip is not more than 40 μm.

Claim 4:

4. (currently amended) The semiconductor laser device according to Claim 2, wherein the
metal filler included in the conductive die-bond paste is silver paste
~~the conductive die-bond paste interposed between a die-bond surface of the semiconductor~~
~~laser chip and the base portion is 5 μm or lower thick.~~

Claim 5:

5. (currently amended) The semiconductor laser device according to Claim ~~[[2]]~~ 3, wherein
the metal filler included in the conductive die-bond paste is silver paste.

Claim 6:

6. (currently amended) The semiconductor laser device according to claim ~~[[5]]~~ 2, wherein
the content ratio of silver in the conductive die-bond paste is 82% - 84%.

Claim 7:

7. (new) The semiconductor laser device according to claim 3, wherein the content ratio of
silver in the conductive die-bond paste is 82% - 84%.

Allowable Subject Matter

3. The following is an examiner's statement of reasons for allowance, with respect to claims
1, 2, and 3 the references of the record fail to teach or suggest the semiconductor laser device and
method of manufacturing thereof:

Claim1:

A semiconductor laser mounted on a base using an electrically conductive die-bond paste including metal filler, where the chip is kept pressurized by a collet bearing a weight toward the base portion and having the die-bond paste temporary cure, and after the temporary curing the final curing of the conductive die-bond paste is done in the thermostat without pressurizing by the collet.

Claims 2, 3:

A semiconductor device comprising a semiconductor laser chip mounted on a based using an electrical conductive die-bond paste include metal filler, where the thermal resistance of the laser device is 90°C/W or lower and the thickness of the conductive die-bond pasted is $5\mu\text{m}$ or lower, or the creep-up height of the conductive die-bond paste at the side face is not more than $40\mu\text{m}$.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication Information

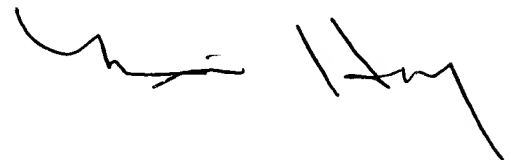
Art Unit: 2828

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen



MINSUN OH HARVEY
PRIMARY EXAMINER
